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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/980,788	12/06/2001	Philippe Peltie	034299-366	8545

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EXAMINER
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SIEFKE, SAMUEL P

ART UNIT	PAPER NUMBER
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1743

DATE MAILED: 02/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/980,788	<b>Applicant(s)</b> PELTIE ET AL.	
	<b>Examiner</b> Samuel P. Siefke	<b>Art Unit</b> 1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6,8 and 9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,8 and 9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-6, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thundat et al. (USPN 5,719,324) in view of WO 94/18697

Thundat teaches a microcantilever sensor that comprises a microcantilever attached to a piezoelectric transducer. The microcantilever sensor is fabricated with at least one attached to a piezoelectric transducer. The surface is treated with a compound selective substance having substantially exclusive affinity for a targeted compound in a monitored atmosphere. The sensor is also provided with a frequency detection means and a bending detection means. The frequency detection means is capable of detecting changes in the resonance frequency of the vibrated in the

monitored atmosphere. The bending detection means is capable of detecting changes in the bending of the vibrated in the monitored atmosphere coactively with the frequency detection means. The piezoelectric transducer is excited by an oscillator means which provides a signal driving the transducer at a resonance frequency inducing a predetermined order of resonance on the partially treated. Upon insertion into a monitored atmosphere, molecules of the targeted chemical attach to the treated regions of the resulting in a change in oscillating mass as well as a change in spring constant thereby influencing the resonant frequency of the oscillation. Furthermore, the molecular attachment of the target chemical to the treated regions induced areas of mechanical strain in the consistent with the treated regions thereby influencing bending. The rate at which the treated accumulates the target chemical is a function of the target chemical concentration. Consequently, the extent of oscillation frequency change and bending is related to the concentration of target chemical within the monitored atmosphere (abstract; col. 3, line 40- col. 4, line 65; col. 7, line 66 – col. 8, line 45; fig. 12a-12d).

Thundat does not teach a microcantilever sensor the comprises a beam having a spiral shape and a mobile support being formed at the center of the spiral.

WO 94/18697 teaches microcantilevers that are in various shapes that include triangular and rectangular structures, as well as curved structures such as circles, ellipses, and parabolas for use in the fabrication of fixed and variable inductors (page 8, see fig. 2, 7, 9, 13). It would have been obvious to one having an ordinary skill in the art to modify Thundat to employ the shapes of the cantilevers of WO 94/18697 in

order to expose greater surface area to allow a biological sample to bind to an analyte on the surface of the cantilever.

### ***Response to Arguments***

Applicant's arguments filed 11/21/05 have been fully considered but they are not persuasive. Applicant argues, "The Office Action reasons that the desire for increased surface area would motivate the ordinarily skilled artisan to look to the PCT publication for a spiral shape (that the PCT publication does not disclose)." Figure 13 of the PCT publication specifically illustrates a spiral cantilever.

Applicant argues, "The reasoning proffered in the Office Action- that is, increasing the surface area- is not provided by the references and is not based on an issue or problem confronted by their teachings." To establish a prima facie case of obviousness three basic criteria must be met. First there must be some suggestion or motivation, either in the reference themselves **or** in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine the teachings. The later being applicable in this situation. It is well known in the art that if one increases the surface area of a substrate or object, more sample analyte will be exposed to the surface. This is the primary motivation to employ a spiral shaped cantilever.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel P. Siefke whose telephone number is 571-272-1262. The examiner can normally be reached on M-F 7:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on 571-272-1700. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


Art Unit: 1743

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sam P. Siefke



February 3, 2006



Jill Warden  
Supervisory Patent Examiner  
Technology Center 1700